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ABSTRACT

Measures of family interaction from the preschool and early adolescent periods are examined as predictors of competence in late adolescence. Data on which this report is based are drawn from a longitudinal study initiated by Jack and Jeanne Block almost 20 years ago which included 51 males and 52 females. Measures of competence include an intelligence quotient, high school grade point average, and indices of ego-resilience and identity achievement derived from the California Q-sort. Mother-child and father-child interaction at the child's fifth year of age, in four problem solving tasks, were rated using the Teaching Strategies Q-sort. The family interaction Q-sort assessed mother-child, father-child, and spousal interaction in problem solving at the children's thirteenth year. Preschool mother-child interaction had long-term predictive significance for intelligence and ego-development in late adolescence. Father-child interaction was unrelated to intelligence in either sex, and predicted ego-development only for males. Early father-child interaction predicted achievement, especially among males. Correlates of girls' grade point average show discontinuity between beginning and end of high school. Interaction with same-sex parent in dyadic situations was more predictive of later competence, while influence of opposite-sex parent emerged in triadic situations. Spousal interaction was strongly associated with girls' intelligence quotient and boys' achievement. (RH)

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FAMILY INTERACTION PREDICTORS OF COMPETENCE IN LATE ADOLESCENCE

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Family Interaction Predictors of Competence in Late Adolescence

The data on which this report is based are drawn from a longitudinal study initiated by Jack and Jeanne Block almost twenty years ago. The original sample of 130 3-year-olds were enrolled in the two nursery schools affiliated with the University of California Child Study Center. Preschool assessments (ages 3 to 5) were completed with 59 boys, 58 girls, their 117 mothers and 92 of their fathers. The sample was re-assessed at ages 7, 11, and 14; 51 young men and 52 young women were available for the latest assessment at age 18. Most were then high-school seniors, although some had dropped out of school and a few had already graduated and gone on to college or work. This is a heterogeneous sample, but skewed towards upper-middle class; two-thirds are Caucasian, one-fourth Black and one-twelfth Asian. Parents had attended four or more years of college, on the average. The mean IQ of the subjects at their initial assessment with the WIPPSI at age four was 115.43 for boys and 118.95 for girls.

In considering the array of possible measures of "competence" included in the assessment battery administered to these subjects at age 18, the implied definitions of that construct range from intellectual ability and academic achievement to identity status, autonomy, capacity for interpersonal intimacy and mature social values. No one measure captures the range of talents and accomplishments or the depths of disorganization and anomie

evident among these young people. The construct of "ego-resilience" has been a central one throughout the project, referring to broader aspects of problem-solving effectiveness and goal-directedness. Jack Block and Per Gjerde have recently reported on the developmental continuities and predictors of ego-resilience. I will refer to their findings only in a general way, and will focus more narrowly on intellectual ability, as indexed by the Weschler Intelligence Scales, and on academic achievement as represented by high school grade point average.

Although many aspects of the family environment and of parent-child relations may be implicated in the development of competence, I have chosen to examine the assessment situations in which the subjects and their parents were directly observed in interaction aimed at solving problems or accomplishing specific tasks. Parental teaching strategies were assessed in a standard experimental situation when the children were five. Each parent taught the child a battery of four cognitive tasks, varying in their convergent/divergent demand qualities. Alternate forms of each task were devised, and the two parents participated separately in the teaching procedure at least five weeks apart. All interactions were videotaped. The examiner observed through a one-way mirror and at the end of the session described parent-child interactions by means of a 49-item Teaching Strategies Q-sort (TSQS). The Q-sorts were also completed by a second rater; reliabilities for the individual items ranged from .16 to .93 with

a mean of .70.

All analyses have been carried out separately for male and female subjects.

Prediction of intelligence from pre-school parent teaching strategies.

The first set of tables displays the correlations between TSQS items for mothers and fathers and total IQ on the WAIS at age 18. All items with correlations whose probability falls below the 10% level are included; this rather generous criterion of significance is used since items which barely miss significance at the 5% level in one analysis often show up in another analysis and the overall pattern of associations is clearer. The outstanding conclusion from these data is the much greater prediction of IQ in late adolescence from early mother-child patterns of interaction than from father-child variables. Forty-six out of the possible 98 mother-child correlations for the two sexes are significant at the 5% level, while only 17 father-child variables reach that level of significance. Besides this differential effect for the two parents, some interaction with child gender is evident. The number of father-daughter interaction variables significantly correlated with later IQ barely exceeds chance, while the number for sons is twice chance.

Given the time-span involved (13 years), the relatively small N and the magnitude of some of the correlations, these findings

are impressive. For instance, a maternal teaching style which provides the pre-school daughter with reasons and explanations or exploits incidental opportunities for learning, or uses non-physical means of communication with her son, shares 25% of common variance with the child's intellectual functioning as measured by the WAIS in late adolescence. What do the findings mean? Obviously no simplistic unidirectional causal model is appropriate. I think we can make a strong case, however, for the influence of the early relationship with both parents, especially the mother, as displayed in a problem-solving situation, on the long-term development of intellectual competence. Unfortunately we have no direct assessment of parental intelligence which would allow some measure of control for genetic factors. One can readily assume that brighter parents have brighter children, and that more and less intelligent parent-child pairs will interact differently when confronted with an intellectual challenge. We do have some indications, however, that this is not the whole story. Parental demographic variables, including parents' education, have few and trivial correlations with the teaching strategies variables. Since our parent sample covers the gamut from university faculty to school drop-outs, one might assume that parental education would greatly influence teaching style, but it does not. This may be due to the puzzle-like, non-academic tasks used in the teaching strategies situation.

Another aspect of this question is illuminated if we compare the parent teaching strategies correlates of preschool IQ scores (on the WPPSI, administered at age 4) with the correlates of late adolescent IQ. These correlations are also displayed in the first set of tables. While there is considerable overlap between the specific TSQS items correlated with the WPPSI and those correlated with the WAIS, the correlations with the WAIS are more numerous (46 vs. 29 mother-child items) and generally of somewhat greater magnitude than those for the WPPSI; this is true for both parents and for both boys and girls. In fact, there are so few father-child interaction variables associated with the preschool child's level of intellectual functioning, especially for girls, that one could hardly claim a significant relationship. Since the WAIS and the WIPPSI scores are of course substantially correlated (.69 for girls and .63 for boys), we have also partialled out the effect of the WIPPSI from the TSQS by WAIS correlations (see the second column in the tables). It is clear that even with the child's initial IQ level held constant, there are substantial long-term effects of early parent-child interaction on intellectual development through adolescence. These are most evident in the mother-daughter dyadic relationship.

As to the content of the interactions that are predictive of later IQ, this is clarified by subjecting the significant TSQS correlates of the WAIS, separately for mothers and for fathers, boys and girls, to a set of hierarchical cluster analyses. Using

the complete linkage method, six clusters seem to provide a good fit for the maternal interaction correlates for boys and girls respectively, while paternal interaction correlates of the WAIS yield two clusters for girls and three for boys. The items comprising each of the clusters are indicated in the tables. Similar patterns are evident for the two sexes; in fact 30 out of the 50 significant correlates overlap. Items reflecting a supportive, mutually enjoyable mother-child relationship are predictive of higher IQ for both sexes, as are TSQS items that suggest a mother who provides cognitive stimulation for her child and has an effective teaching style. The latter quality seems to be especially important for girls' intellectual development and is an intrinsic part of the supportiveness cluster. Negative maternal affect is predictive of less adequate intellectual functioning in both sexes; however, it has a somewhat different quality for mothers of boys and of girls. Mothers of boys with less favorable intellectual outcome interacted with them as preschoolers in a somewhat rejecting manner (impatient, frustrated, ashamed); a similar negative outcome in girls is associated with mothers who appeared anxiously inept and helpless in the teaching situation and seemed to project their own sense of inadequacy onto the child. Maternal relaxed acceptance of autonomy seems especially important for boys' intellectual development, and critical pressure for performance has clear negative implications. Maternal physical involvement in the

situation (presumably getting in and manipulating puzzle pieces herself) seems to have negative implications for both sexes, but for girls' mothers is combined with protectiveness and intrusiveness. An alternate pattern predictive of lower IQ for girls is maternal reserve and over-control.

The sparse paternal interaction predictors of girls' IQ yield only two clusters, one positive and one negative. A more favorable outcome for girls seems to be associated with a father who approaches the tasks competently and creates a rewarding, enjoyable situation for his daughter. A more favorable outcome for boys is associated with a father who takes an active and appropriate teaching role with his preschool son, while lower IQ at age 18 is associated with a father who seemed inadequate to the situation, reserved and over-controlled when his son was five.

Prediction of academic achievement in high school from preschool parent teaching strategies.

Grade point averages were calculated from school records, averaging the grades in all academic courses for each year level, and across the four years of high school. Data were available for 50 male and 48 female subjects, although senior year grades were missing for 21 subjects. GPA is a crude measure of academic achievement, of course, since the sample were attending many different high schools with differing curricula and standards. SAT scores were available for some subjects, but not enough to

warrant including in this analysis.

The patterns of prediction from the preschool parent teaching strategies to GPA differ for boys and girls across the four years of high school. Table 2 contrasts the number of significant predictions from mother and father TSQS items to GPA for 9th grade and for 12th grade for male and female subjects. For boys, the substantial number of significant correlations at ninth grade, especially for maternal variables (21 out of a possible 49) drops to below chance at 12th grade. For girls, the pattern is just the opposite: the relatively few parental interaction predictors evident at ninth grade (below chance for father variables) increase in number at 12th grade, so that there is substantial prediction to senior year grades from interaction with each parent in the teaching strategies situation when the girls were five. Since there is subject loss from an already small sample, especially from the 12th grade data, it was possible that this might account for these differences in correlates. Recalculation of predictive relationships for the subsample of subjects represented at all grade levels, however, reduced the overall number of significant correlations but did not alter the pattern. This pattern is most succinctly illustrated in Table 3 by the correlations between GPA at each grade level and the single item "Appears to have a high degree of intellectual capacity" from the California Child Q-set completed by the subjects' nursery school teachers. This is an excellent predictor of academic achievement,

as well as of the other indices of intellectual competence, for males, but as can be seen in Table 3, it is a modest, though significant predictor for females through 11th grade and the predictive association dwindles to insignificance in 12th grade. This general finding, of much lower consistency for our female than for our male subjects in indices of competence from early childhood through adolescence, has already been reported with respect to ego-resilience by Block and Gjerde. As we have seen, this lack of consistency for the girls in overt manifestations of competence is not reflected in a lower level of prediction, as compared to the boys, from measures of parent-child interaction in early childhood to indices of competence in late adolescence. However, the specific pattern of parent-child interaction predictive of competence may well shift during adolescence. We have already seen this illustrated with respect to the TSQS predictors of IQ. Whereas maternal interaction is overwhelmingly more significant as a predictor of intelligence in early childhood for children of both sexes, early patterns of interaction with the father emerge as significant, particularly for girls, in the prediction of IQ at age 18. This same developmental shift is evident for girls with respect to the prediction of academic achievement across the four years of high school. Table 4a and 4b display the predictive relationships between the pre-school teaching strategies interactions and 9th and 12th grade GPA for girls.

As we have noted, only maternal teaching strategies items appear as significant correlates of girls' GPA in the 9th grade. Higher achievement is predicted by a mother who is direct and spontaneous in the teaching situation, in contrast to one who is over-controlled, unexpressive and seems confused as to what is expected. This same set of maternal variables appears as predictive of girls' achievement in their senior year, but now supplemented with other items which suggest that when her daughter was a preschooler the mother took an active and effective teaching role with her. Lower achievement in 12th grade, on the other hand, is predicted by a pattern of preschool interaction in which the mother was less effective in coping with the demands of the situation and took a permissive stance with her daughter, allowing the child to engage in non-task behavior.

A clear pattern of early father-daughter interaction emerges as even more significantly predictive of senior-year achievement. The fathers of high-achieving adolescent girls had been able to establish a supportive and effective working relationship with their young daughters, made the teaching situation a rewarding one for the girls and themselves, and were able to elicit the child's best performance. Poor achievement was predicted by a father who became frustrated in the teaching situation, tended to compete with his daughter and project onto her his own sense of inadequacy, or who seemed confused, inept and unable to be authoritative.

I have chosen to present the TSQS correlates of total high school GPA for boys (see Table 4c), since there is less discontinuity in their data than in the girls', and the overall average would seem to provide a more reliable measure of their achievement. As we see from the table, there are more significant predictions from maternal than paternal interactions (19 vs. 12). The mother-child predictors fall into four clusters, which we might label: pleasurable and supportive interaction (Cluster 4) and encouraging autonomy (Cluster 2), both positively related to later achievement and, predictive of lower achievement, a pattern of maternal frustration (power struggle, impatient, hostile ashamed) (Cluster 1) and a pattern of critical pressure and intrusiveness (Cluster 3). We should also note at this point that 17 of the 19 mother-son interaction variables predictive of later achievement are also predictors of IQ at age 18. Thus there is a highly coherent pattern of early mother-son interaction in problem-solving tasks that is predictive of late adolescent intellectual and academic competence.

However, there is also a clear pattern of early father-son interaction that is predictive of later academic success. The high-achieving boys had fathers who were able to establish good working relationships and adopt an effective teaching style with them when they were preschoolers, and who were relaxed and non-protective. Lower achievement is predicted by a combination of paternal withdrawal, confusion and frustration. Again, there is

some overlap with the father-son interactions predictive of intelligence, although the correspondence is not as close as for the maternal variables.

Conclusions

Let me try briefly to draw a few general conclusions:

There is very substantial longitudinal prediction of IQ and GPA in late adolescence from parent-child interaction in a problem-solving situation in early childhood.

Early mother-child interaction has, in general, much greater predictive significance than does father-child interaction, although, as we might expect, paternal interaction is of greater significance for sons than for daughters.

The qualities of early parent-child interaction predictive of later intellective achievement include:

an emotionally supportive relationship and

parental modeling of effective problem-solving

These are combined for girls with a certain level of demands for competence, while for boys an interactional style that respects the child's individuality and grants autonomy seems more conducive to positive development.

We have noted the emergence of paternal influence on the academic achievement of both boys and girls in high school. This influence of early father-child interaction is clearer for boys. The influences on girls' achievement seem more discontinuous from

the beginning to the end of high school; the predictive significance of positive early interactions (including maternal expectations and modeling of competence) is clearer by the senior year. I suggest that this may have to do with a resolution of early adolescent conflicts and rapprochement with parents evident in girls by late adolescence.

These relationships between early parental teaching strategies and late adolescent intellectual and academic functioning may also be viewed in the perspective of other longitudinal findings from this project. Block and Gjerde have recently presented the early antecedents of ego-resilience at age 18, including significant items from the TSQS. Ego-resilience was indexed by the composite Q-sort (CAQ) completed on each subject by the four examiners who worked with him or her in a broad range of assessment tasks. The pattern of mother-child interaction characterized by an easy, relaxed supportive relationship and an absence of pressure, intrusiveness and negative affect seems to predict both positive intellectual development and the broader aspects of problem-solving effectiveness indexed by the measure of ego-resiliency. The difference, however, seems to lie in the TSQS items descriptive of an effective parental teaching style and a competent cognitive model, that are more specific predictors of IQ. As Block and Gjerde point out, when one separates out the personality correlates of ego-resiliency from those of IQ at late adolescence, the former is clearly related to social extroversion

and effectiveness in interpersonal relations.

Other data from a family problem-solving task administered when th subjects were 13 further illustrate the shifts in the constellation of mutual family influences at the onset of adolescence, that have been noted by Steinberg (1981) and others. Despite these developmentally appropriate shifts in emphasis, however, the overarching conclusion is one of impressive continuity from parent-child problem-solving styles in early childhood to adolescent outcomes.

Reference

Steinberg, L. D. (1981). Transformations in family relations at puberty. Developmental Psychology, 17, 833-840.

Table 1a

Girls: Mothers' Teaching Strategies (Age 5) Correlates of WAIS (Age 18) and WIPPSI (Age 4) Total IQ

TSQS Item	WAIS r N = 42	WAIS r WIPPSI Constant N = 35	Clusters 1	2	3	4	5	6	WIPPSI r N = 53
Mothers' Positive Correlates									
Gives child reasons and explanations	.50**	.39*		X					.32*
Exploits incidental opportunities for teaching	.50**	.32*					X		.38**
Responsive to child's needs	.42**	.47**			X				
Enjoys her role as teacher	.39**				X				
Supportive and encouraging of child	.39**	.31			X				
Seems easy and relaxed	.37*	.29			X				.36**
Resourceful in helping child	.36*			X					.28*
Derives pleasure from being with child	.36*	.30			X				
Attends to the cognitive elements	.35*			X					.38**
Encourages child to be independent	.35*						X		
Has a clear and coherent teaching style	.33*				X				.31*
Able to establish good working relationship with child	.32*				X				
Makes the situation fun	.28	.28			X				

All correlations of $p<.10$ are reported.

**$p<.01$. *$p<.05$.

Table 1a - cont'd (Girls)

TSQS Item	WAIS r N = 42	WAIS r WIPPSI Constant N = 35	Clusters 1	2	3	4	5	6	WIPPSI r N = 53
Mothers' Negative Correlates									
Appears ashamed of child	-.48**	-.37*	X						-.28*
Seems confused about what is expected	-.47**		X						-.43**
Appears frustrated in inability to find strategy	-.45**		X						-.36**
Is reserved and unexpressive	-.44**	-.41**				X			
Tends towards over-control of own needs and impulses	-.42**	-.29				X			
Gives up and retreats from difficulties	-.39**		X						-.45**
Is protective of child	-.35*							X	
Is hostile	-.32*	-.34*	X						
Adult intrudes physically in tasks	-.31*	-.36*						X	
Is anxious about imposing authority	-.30*		X						-.31*
Gets into power struggle with child	-.29	-.37*	X						
Conducts session in unusual way	-.26		X						
Overly interested in child performing well	-.26	-.29						X	
Is impatient with child	-.26								

Table 1b

Boys: Mothers' Teaching Strategies (Age 5) Correlates of WAIS (Age 18) and WIPPSI (Age 4) Total IQ

TSQS Item	WAIS r N = 40	WIPPSI r Constant N = 32	Clusters 1	2	3	4	5	6	WIPPSI r N = 50
Mothers' Positive Correlates									
Emphasizes principles rather than specific solutions	.46**	.35*						X	
Encourages child to be independent	.44**					X			.30*
Able to establish good working relationship with child	.42**	.45**			X				.47**
Seems easy and relaxed	.39*					X			
Values child's originality	.37*					X			.33*
Derives pleasure from being with child	.34*				X				.34*
Responsive to child's needs	.33*	.28			X				
Surrenders control of situation to child	.33*					X			
Supportive and encouraging of child	.30				X				.48**
Makes the situation fun	.29				X				.25
Gives child reasons and explanations	.29							X	
Elicits child's best performance									.51**
Child enjoys situation									.30
Tends toward over-control of own needs and impulses									.26

Table 1b - cont'd (Boys)

TSQS Item	WAIS r N = 40	WIPPSI r Constant N = 32	Clusters 1	2	3	4	5	6	WIPPSI r N = 50
Mothers' Positive Correlates (cont.)									
Adult exploits incidental opportunities for teaching									.25
Attends to cognitive elements									.24
Allows child to engage in non-task oriented play									.24
Praises child									.23
Has clear and coherent teaching style									.23
Resourceful in helping child									.23

Table 1b - cont'd (Boys)

TSQS Item	WAIS r N = 40	WIPPSI r Constant N = 32	Clusters 1	2	3	4	5	6	WIPPSI r N = 50
Mothers' Negative Correlates									
Uses physical means to communicate with child	-.50**			X					-.38**
Critical of child	-.41**	-.38*					X		-.34*
Presures child to work at tasks	-.41**	-.40*					X		-.36**
Is impatient with child	-.41**		X						-.45**
Gets into power struggle with child	-.40**	-.30	X						-.3?**
Appears frustrated in inability to find adequate strategy	-.38*		X						-.50**
Intrudes physically in tasks	-.38*			X					-.35*
Appears ashamed of child	-.34*	-.31	X						-.33*
Adult's pacing of situation is faster	-.33*		X						
Overly interested in child performing well	-.30						X		
Becomes involved in situation	-.28			X					
Is hostile	-.27		X						-.32*
Expresses needs in direct way									-.40**

Table 1c

Girls: Fathers' Teaching Strategies (Age 5) Correlates of WAIS (Age 18) and WIPPSI (Age 4) Total IQ

	WAIS				
		r	Clusters		WIPPSI
TSQS Item	r N = 38	WIPPSI Constant N = 32	1	2	r
Fathers' Positive Correlates					
Child appears to enjoy situation	.36*	.41*		X	
Has a coherent teaching style	.35*			X	
Avoids confrontation		.34*			
Praises child	.33*			X	
Is protective of child		.33			
Is straightforward and direct					.29
Gives child reasons and explanations					.28
Emphasizes principles and strategies		.29			
Fathers' Negative Correlates					
Pressures child to work at tasks	-.46**	-.46**	X		
Dramatizes teaching		-.43**			
Appears frustrated in inability to find adequate strategy	-.35*		X		
Is overly interested in child performing well	-.27				

Table 1d

Boys: Fathers' Teaching Strategies (Age 5) Correlates of WAIS (Age 18) and WIPPSI (Age 4) Total IQ

	WAIS					WIPPSI
		r	Clusters			r
TSQS Item	r N = 33	WIPPSI Constant N = 26	1	2	3	N = 38
Fathers' Positive Correlates						
Emphasizes principles and strategies	.41*		X			.32
Able to establish good working relationship with child						.38*
Exploit incidental opportunities for teaching	.31		X			.34*
Becomes involved in situation		.36				
Is spontaneous with child		.33				
Gives child reasons and explanations	.25					.33*
Expresses needs in direct way	.32		X			
Attends to cognitive elements	.30		X			
Fathers' Negative Correlates						
Appears frustrated in inability to find adequate strategy	-.37*			X		-.47**
Is reserved and unexpressive	-.40*	-.45*		X		
Seems confused about what is expected	-.37*	-.33			X	
Is spontaneous with child						-.36*
Uses physical means to communicate with child						-.34*
Tends towards overcontrol of own needs and impulses	-.29			X		
Gives up and retreats from difficulties	-.29				X	

Table 2

Number of Significant ($p<.10$) Correlations between TSQS Item (Age 5) and High School GPA

	Males				Females			
	Father-child Interaction		Mother-child Interaction		Father-child Interaction		Mother-child Interaction	
	No. r's Sig.	N	No. r's Sig.	N	No. r's Sig.	N	No. r's Sig.	N
Grade 9	7	32	21	39	2	35	7	39
Grade 12	3	27	1	29	12	29	12	33

Table 3

Correlations between CCQ Age 4 Item "Appears to Have High Intellectual Capacity" and High School GPA

	Grade 9			Grade 10			Grade 11			Grade 12		
	r	N	p	r	N	p	r	N	p	r	N	p
					All Subjects							
Males	.60	43	.000	.54	44	.000	.59	43	.000	.59	32	.000
Females	.37	42	.016	.35	43	.022	.36	42	.019	.11	36	.505
					Subjects Available All Grade Levels							
Males	.57	31	.001	.56	31	.001	.47	31	.008	.60	31	.000
Females	.30	35	.080	.39	35	.021	.27	35	.114	.12	35	.50

Table 4a

Girls: Parents' Teaching Strategies (Age 5) Correlates of Grade 9 GPA

TSQS Item	r	Clusters 1	Clusters 2
Mothers' Positive Correlates (N = 39)			
Expresses needs in direct way	.33*	X	
Is spontaneous with child	.27	X	
Easy and relaxed in situation	.27	X	
Mothers' Negative Correlates			
Tends toward over-control of needs and impulses	-.42**		X
Seems confused about what is expected	-.39**		X
Reserved and unexpressive	-.30		X
Is protective of child	-.29	X	
Fathers' Correlates (N = 35)			
Has a clear and coherent teaching style	.35		
Appears frustrated in inability to find adequate strategy	-.31		

Table 4b

Girls: Parents' Teaching Strategies (Age 5) Correlates of Grade 12 GPA

TSQS Item	r	Clusters 1	2	3
Mothers' Positive Correlates (N = 33)				
Expresses needs in direct way	.34*		X	
Structures task at outset	.34*		X	
Attends to cognitive elements	.31		X	
Pressures child to work at task	.31		X	
Is resourceful in helping child	.31		X	
Mothers' Negative Correlates				
Allows child to engage in non-task play	-.42*	X		
Handles child with kid gloves	-.42*	X		
Confused about what is expected	-.35*			X
Gives up and retreats from difficulties	-.35*			X
Is protective of child	-.32	X		
Tends towards over-control of own needs and impulses	-.30	X		
Values child's originality	-.29	X		

Table 4b - cont'd (Girls)

TSQS Item	r	Clusters 1	2	3
Fathers' Positive Correlates (N = 29)				
Is able to establish working relationship with child	.51**			X
Is resourceful in helping child	.51**			X
Is supportive and encouraging	.50**			X
Elicits child's best performance	.42*			X
Praises child	.34			X
Has a clear and coherent teaching style	.34			X
Enjoys his role as a teacher	.32			X
Fathers' Negative Correlates				
Appears frustrated in inability to find adequate strategy	-.48**		X	
Gets into power struggle with child	-.42*		X	
Adult is anxious about imposing authority	-.39*	X		
Confused about what is expected	-.34	X		
Gives up and retreats from difficulties	-.34	X		
Appears ashamed of child	-.31		X	

Table 4c

Boys: Parents' Teaching Strategies (Age 5) Correlates of Total GPA

TSQS Item	r	Clusters 1	2	3	4
Mothers' Positive Correlates (N = 40)					
Able to establish working relationship with child	.43**				X
Easy and relaxed in situation	.41**		X		
Child appears to enjoy the situation	.41**				X
Values child's originality	.40**		X		
Encourages child to be independent	.35*		X		
Adult derives pleasure from being with child	.33*				X
Makes the situation fun	.31				X
Surrenders control of situation to child	.28		X		
Elicits child's best performance	.28				X
Mothers' Negative Correlates					
Appears frustrated in inability to find adequate strategy	-.43**	X			
Critical of child	-.41**			X	
Pressures child to work at tasks	-.41**			X	
Intrudes physically in tasks	-.38*			X	
Gets into power struggle with child	-.37*	X			
Impatient with child	-.37*	X			
Overly interested in child performing well	-.36*			X	

Table 4c - cont'd

TSQS Item	r	Clusters 1	2	3	4
Mothers' Negative Correlates (cont.)					
Is hostile	-.34	X			
Appears ashamed of child	-.32	X			
Uses physical means to communicate with child	-.30			X	
Fathers' Positive Correlates (N = 33)					
Is able to establish good working relationship with child	.51**	X			
Elicits child's best performance	.39*	X			
Easy and relaxed in situation	.37*			X	
Attends to cognitive elements	.35*	X			
Emphasizes principles and strategies	.32	X			
Gives the child reasons and explanations	.29	X			
Has a clear and coherent teaching style	.28	X			
Fathers' Negative Correlates					
Gives up and retreats from difficulties	-.48**		X		
Confused about what is expected	-.43*		X		
Appears frustrated in inability to find adequate strategy	-.40*		X		
Is reserved and unexpressive	-.38*		X		
Is protective of child	-.29			X	